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Department of Education

Courses of Study

Grades IX, X, XI, XII and XIII

**Defence Training,
Health and Physical Education**

**Issued by Authority of
The Minister of Education**

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Defence Training, Health and Physical Education

GRADE PLACEMENT AND TIME ALLOTMENT OF SUBJECTS—BOYS' COURSE

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GRADE PLACEMENT AND TIME ALLOTMENT OF SUBJECTS—GIRLS' COURSE

	GRADE IX	GRADE X	GRADE XI	GRADE XII	GRADE XIII
Physical Education...	68	Physical Education... 68	Physical Education.. 68	Physical Education... 68	Physical Education... 68
Health and Safety...	34	Physiology..... 34	First Aid..... 22	Healthful Living... 34	
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		Options..... 34	Options..... 22	Options..... 34	Options..... 102
		Campcraft	Physical Education	Physical Education	Any three of the following:
		Knots, Bends, Hitches	Signals	Home Nursing	(a) Child Study
		Aircraft Recognition	Map and Chart	Women's Divisions of	(b) Navigation
		Fundamentals of	Reading	the Armed Services	(c) Principles of Flight and
		Defence Training	Fieldcraft and Wood-	Signals	Meteorology
		Small Arms	craft	Civilian Protection	(d) Advanced Map Reading
					and Applied Mathematics

NOTE 1.—The number of periods in each optional subject is suggested as a guide to instructors.

2.—No change is made in the present Regulations re the time allotment for Health and Physical Education in any grade, but in Grade XIII, Physical Education may be substituted in the Girls' Course for any two of (a), (b), (c) or (d), provided a student wishes only a graduation diploma and not university credit.

COURSES OF STUDY

Grades IX, X, XI, XII and XIII

in

**COLLEGIATE INSTITUTES, HIGH, VOCATIONAL
AND CONTINUATION SCHOOLS**

**Defence Training,
Health and Physical Education**

The course in Defence Training, Health and Physical Education covers in general the work previously included in the courses in Health and Physical Education and the training formerly given by the cadet corps where they were organized in the schools of the Province. With the approval of the Minister of Education and the Ministers of National Defence for the Navy, the Army and the Air Force, topics have been added which cover much of the training required by the cadet programmes of the three services. A corresponding course for girls has also been provided.

The subjects listed under the Defence Training Programme constitute an obligatory course for all secondary schools of the Province, except where exemption has been granted by the Minister of Education.

The programme of training outlined herewith takes the place of the course formerly provided in Health and Physical Education in all grades. Additional time is necessary for teaching the specialized topics which have now been added. In addition to the time already provided for Health and Physical Education, a minimum of one additional period a week is required in Grade X. Two additional periods a week are required in Grades XI and XII, and three additional periods a week in Grade XIII. This time may be obtained as follows:

1. In Grade X one period a week shall be taken from the other obligatory subjects.
2. In Grades XI and XII two periods and in Grade XIII three periods a week shall be provided in one of the following ways:
 - (a) by taking the periods from the other obligatory subjects;
 - (b) by shortening periods in order to obtain the additional time;
 - (c) by lengthening the school day. For the duration of the war a school day of five hours and thirty minutes is recommended.

DEFENCE TRAINING COURSE

in

Grades X, XI, XII and XIII

It is the aim of this course to provide the training for boys and girls in these grades which will make them conscious of the national need and prepare them to serve in any capacity should the need arise.

It is intended that, as far as possible, the boys and girls will take the complete course set forth. In Grade X it is possible to offer a common course for both boys and girls. In Grades XI, XII and XIII much of the training is suitable for pupils of both sexes.

The full co-operation of the Navy, the Army and the Air Force is necessary in order to develop the Defence Training Programme. It is expected that officers of these services designated for this purpose by the Ministers of National Defence will pay occasional visits to the schools for the purpose of inspecting the work being done and offering suggestions relevant to the special subjects included in this programme. Such visits or inspections are to be encouraged. Formal inspection has an excellent effect, and each school is encouraged to plan for an inspection at a suitable time during the school year at which representatives of the Navy, the Army and the Air Force or a representative of the municipality or a local unit should be invited to assist in making the inspection a significant occasion. An inspection should demonstrate the progress made in each of the activities of the programme and should not be confined to ceremonial drill.

Competitions in athletics, games and sports are desirable and are considered essential for developing initiative and team spirit, but because of the additional time required for the teaching of this course it is recommended that such competitions be held between classes and forms within the school, and that for the duration of the war no school time be taken for inter-school games.

OUTLINE OF COURSE FOR BOYS

BASIC DRILL

Grades X to XIII

A comprehensive and progressive course in Basic Drill is to be included in the Physical Education course, and should occupy about fifteen periods each year in Grades X, XI, XII and XIII. The following positions and movements should be stressed:

Position of attention, stand at ease, stand easy; formation of squad in threes, open and close order; dressing; turning right, left and about; sizing a squad; marching in quick time, length of pace, time, position; halting; marching, keeping dressing while on the march; marking time, changing step on the march and when marking time; slow march, marching in double time from quick time and marking time; side step, right and left close march; turning on the march; saluting; dismissing; changing direction when halted and when on the move; platoon drill; company drill.

Grade X

Fundamentals of Defence Training.....	8 periods
Knots and Lashings.....	8 periods
Small Arms Training.....	8 periods
Aircraft Recognition.....	10 periods
	<u>34</u> periods

FUNDAMENTALS OF DEFENCE TRAINING (8 PERIODS)

The introductory lessons in the Defence Training course should establish a high level of discipline and demand of each pupil a standard of behaviour which will ensure the most efficient performance.

The following topics are suggested as being essential fundamentals of Defence Training:

1. Good Citizenship:

Duties of a citizen in peace and war; how a student may prepare for duties of citizenship; reasons for and object of Defence Training course.

2. Discipline and Morale:

The significance of discipline and the wearing of the King's uniform; the meaning of *esprit de corps* with illustrations; correct attitude towards rank; the necessity for discipline, smartness and steadiness.

3. Navy, Army and Air Force Organization.

4. Heraldry:

Recognition of flags, decorations, medals and badges of rank, with special emphasis on respect for and proper use of the British and Canadian ensigns.

If time is available, a selection may be made from the following topics:

1. World Geography:

Political divisions of the modern world; the annihilation of distance under conditions of modern warfare.

2. The Struggle for Freedom:

Short review of wars for the freedom of peoples and ideas; examples of outstanding exploits of Canadian arms.

REFERENCES

Defence Training (Dent).

Cadet Training Pamphlet, "Organization."

KNOTS, BENDS AND HITCHES (8 PERIODS)

The following are suggested as the most frequently used bends and hitches, and should be practised until proficiency is attained:

Bowline, reef knot, clove hitch, rolling hitch, single-sheet bend.

If time is available, a selection may be made from the following:

Timber hitch, half hitches, figure-of-eight knot, fisherman's bend, sheepshank, man harness hitch.

REFERENCES

Naval Service Pamphlet.

Cadet Training Pamphlet, "Knots and Lashings" (1942).

Air Cadet Pamphlet No. 8, "Knots and Splices."

SMALL ARMS TRAINING (8 PERIODS)

1. Theory of Rifle Fire.

2. Description of Rifle.

3. Mechanism and Cleaning:

Mechanism, cleaning material and daily cleaning.

4. Aiming Instruction:

Sight setting, rules of aiming, correct aim, common faults in aiming and their effect.

5. Firing Instruction:

Loading and unloading, holding and trigger pressing, firing from low cover and other positions, firing at moving targets.

6. Range Discipline, Practice and Competitions.

NOTE.—In schools where facilities are available, range practice should be carried out regularly after school hours in all grades.

Before a student is allowed to fire on a range, he should be thoroughly instructed in range discipline and in the correct handling of a rifle.

It is assumed that the .22 B.S.A. rifle will be used in the course.

REFERENCES

Defence Training (Dent).

Small Arms Training, Vol. I, Pamphlets 1 and 3 (Army Issue).

AIRCRAFT RECOGNITION (10 PERIODS)

1. Importance of Knowledge of Types.

2. Recognition Points and Definitions of Silhouette Terms To Be Used in Teaching.

3. Description and Illustrations of Allied and Enemy Aircraft:

The following aircraft should be recognized at sight: Hurricane—Hawker; Vickers Supermarine Spitfire; Messerschmitt 109F; Junkers 87B (Stuka); Boston I (A20A); Junkers 88—A6; Focke Wulf 190 (A3); Fortress II B17E and F. Boeing; Liberator III, Consolidated B24D; Lancaster, A. V. Roe & Company; Stirling, Short Brothers; Kittyhawk; Airacobra; Wellington; Halifax.

If time is available, a selection may be made from the following:

Hawker Typhoon; Junkers 52—3M; Mosquito II—DeHaviland; Sunderland, Short Brothers; Martlet; Bermuda; Avenger; Baltimore; Marauder; Mitchell; Do. 217; F.W. 200k; Ju. 290; Defiant; Me. 110.

REFERENCES

- Defence Training (Dent).
- Saville-Sneath—"Aircraft Recognition."
- Air Pamphlets C.A.P. 12A.
- Current magazine articles.

CORRELATED SUBJECT

Model Building

Model Building is to be included in the Manual Training General Shop course in Grades IX and X. This course should develop powers of observation in pupils so that they can recognize the main features of army or air force equipment and by actual construction of models gain a knowledge of the structural features involved in their assembly.

Models and sketches may be studied and constructed under the following headings:

1. Army:

- Types of fighting vehicles—tanks, carriers, armoured cars, etc.
- Types of mechanical transport—lorries, trucks, tractors, etc.
- Types of weapons—guns, howitzers, machine guns, anti-aircraft guns, etc.

2. Air Force:

- Non-flying models—gliders and catapults.
- Elastic power models; gasoline power models.

NOTE.—When it is not feasible to construct the models, diagrams should be drawn or models secured for the purpose of studying their structural features.

REFERENCES

- Defence Training (Dent).
- Current magazine articles.
- Plans and templates, R.C.A.F.

Grade XI

Civilian Protection.....	10 periods
Chart and Map Reading.....	16 periods
Woodcraft.....	8 periods
	34 periods
Signals.....	34 periods

CIVILIAN PROTECTION (10 PERIODS)

1. General:

Changing character of war.

Corresponding changes in methods of defence.

Importance of maintaining civilian morale and uninterrupted productive work.

Scope of A.R.P. in Britain and in Canada.

2. Incendiary Bombs:

Purposes—lighting of targets; completing work of high-explosive bombs; destruction of large areas; civilian panic.

Typical kilogram magnesium bomb—drawing and description; dispersal by aircraft; penetration and methods of control.

Water—reserve supply; description of stirrup pump; practice in its use.

Sand—smothering of bomb; removal by scoop and hoe.

Chemical extinguishers—types; limitations.

Prevention and control of fires—advance precautions; household preparations for fighting fires; measures for personal safety; removal of injured persons.

3. War Gases:

Simple classification of war gases.

Respirators—types; construction; relative effectiveness; practice in fitting, putting on and removing respirator; treatment of eyepieces to prevent misting; proper care of respirators.

If time is available, the following topic may be considered:

High Explosive Bombs:

Description—size; weight; fuses.

Types—anti-personal; demolition; armour-piercing.

Effects—fragmentation; wind-blast; earth vibrations.

Purposes—disruption of civilian life; hampering production of war industries; destruction of military objectives.

Protection—direct hits; splinters and blast; standards necessary for lateral and overhead protection; personal conduct during raid.

Refuge rooms—types of rooms adaptable to this purpose; suitable locations; openings; provisions for blackout; necessary furnishings; arrangements for health, comfort and recreation.

REFERENCES

Defence Training (Dent).

General Training Manual (Ontario Handbook No. 2).

Air Raid Wardens' Handbook (Ontario Handbook No. 6).

Basic Training in A.R.P. (British Manual No. 1).

Practical Guide in A.R.P. (D. Evelyn Thomas).

Outline of A.R.P. (St. John Ambulance Association).

CHART AND MAP READING (16 PERIODS)

Nature and Uses of Maps

1. Representing the Earth on Paper:

Topographical projections—basic, col, knoll, spur, shapes, areas, etc.; technical terms—contour, gradients, heights or depths, contours and form lines, layer tints, hachures, hill shading.

2. Conventional Signs:

Object; nature—roads, railways, churches, windmills, airports, beacons, power lines, golf courses, etc.

3. Scale:

Definition and use; methods of expressing scale; construction according to scale; measurement of distance.

Chart Reading

Practical study of naval charts; use; symbols; abbreviations.

If time is available, a selection may be made from the following topics relating to Map Reading:

1. Use of Compass:

The north poles; variation.

2. Bearings:

True, magnetic, compass; relative bearings; conversion of bearings.

3. Fixing Position on the Earth by Map Reading:

Direction and distance on the earth's surface; latitude and longitude; lettered co-ordinates; military grid systems; place names.

REFERENCES

Defence Training (Dent).

Naval Charts to be supplied.

Notes on Map Reading, 1929 (Army Issue).

WOODCRAFT (8 PERIODS)

1. General.

7. Bivouacs and Shelters.

2. Outfitting.

8. Observation.

3. Rations.

9. Snares and How to Set Them.

4. Camp Fires.

10. Dressing Small Game and Fish.

5. Making Camps.

11. Winter Woodcraft.

6. Keeping Direction.

If time is available, a selection may be made from the topics outlined in the pamphlet referred to below.

REFERENCE

Cadet Training Pamphlet, 1942, "Woodcraft."

SIGNALS (34 PERIODS)

The course in this grade is intended to provide instruction similar to that offered in the Signals Branch of the Navy, Army and Air Force. The Semaphore code (flag) and the Morse code (buzzer and lamp*) should be learned in this grade, and suitable tests should be given to determine the fitness of pupils to proceed to a more advanced course in Grade XII. As a guide to the proficiency expected, it is pointed out that naval cadets are required to send and receive Semaphore signals at twelve words per minute, and Army and Air Force cadets to send and receive the Morse code at six words per minute.

*An expensive sending lamp is not necessary. Schools may build an inexpensive set from equipment readily available.

REFERENCES

- Defence Training (Dent).
- Air Cadet Manual, "Signals."
- Air Pamphlet—C.A.P. 12A.

Grade XII

First Aid.....	20 periods
Signals or Civilian Protection.....	14 periods
	<hr/>
	34 periods
Aircraft Recognition.....	20 periods
Navy and Army Specialization.....	14 periods
	<hr/>
	34 periods

FIRST AID (20 PERIODS)

The course of instruction is that laid down by the St. John Ambulance Association for a Senior First Aid course. Examinations will be held in the manner prescribed by the St. John Ambulance Association, and certificates will be awarded to those passing the course.

Principles of first aid; structure and functions of the body; shock; dressings and bandages; fractures; injuries to joints and muscles; circulation of the blood; wounds and haemorrhage; haemorrhage from special regions; the respiratory system; the nervous system; insensibility; poisons; miscellaneous injuries; routine examination of a patient; preparation for reception of victims of accidents; movement of injured persons.

REFERENCES

- First Aid to the Injured (St. John Ambulance Association).
- Home Nursing (Canadian Red Cross Society).
- Emergencies in War (Canadian Red Cross Society).

SIGNALS (14 PERIODS)

The course in Signals in Grade XII should be a continuation of the course given in Grade XI and should aim to meet the service requirements for senior cadets, namely six words per minute.

This course should be offered only to those pupils who have completed satisfactorily the course for Grade XI and have indicated some aptitude for this type of training. Civilian Protection is provided as an option for those who do not take the advanced course in Signals.

CIVILIAN PROTECTION (14 PERIODS)

1. (a) Rapid review of basic course with emphasis upon its practical application, e.g. use of a stirrup pump, location of refuge room.
(b) More detailed study of war gases and protection against gas.
Classification of gases—vapour, liquid and solid; persistent and non-persistent; non-blister—eye, nose and lung irritants; blister gases.
Properties, characteristic effects and identification, table of gases.
Purpose of a gas attack; methods employed in releasing gases; factors influencing the effectiveness of a gas attack.
Definition of "contamination."
Respirators and anti-gas clothing.
Methods of decontamination.
Protection of food, water and military supplies.
Treatment of refuge rooms to prevent entry of gas.
2. Civilian Defence Organization in Canada:
Dominion A.R.P. Committee—powers and duties.
Provincial C.D. Committee (A.R.P.)—officers and duties.
Local C.D.C. Headquarters—Chairman, Vice-Chairman, Secretary;
Controllers—Controller of Police Services, Fire Services, Medical Services, Public Utility Services, Transportation Services;
Wardens—Chief Warden, District, Section, Sector, Post and Service Wardens.
Training—the basic course; special service courses—police, fire, medical, public utilities, transportation; collective exercises—co-ordination of services; the warning system; signals—"A.R.P. Yellow, White, Red, Green" (see Handbook No. 6).
3. A.R.P. Warden Service:
(a) General—importance as a link between the public and the local A.R.P. organization; qualities essential in an efficient warden; compilation of a "Warden's Directory"—names and addresses of local C.D.C. officials, location and telephone numbers of C.D.C. headquarters, wardens' posts, first-aid posts, and special posts; locations of police and fire boxes, location of hospitals, doctors' offices and homes, drug stores, ambulance services; telephone numbers of local police stations, fire halls, offices of public utilities (water, electricity and gas); badges, arm bands and identification card.

- (b) Duties of the Police, Fire, Medical, Public Utilities and Transportation Wardens.
- (c) Manning a warden's post—equipment, routine and records, communications, co-operation between services.
- (d) Reconnaissance and intelligence; message writing and reporting.
- (e) Blackout rules; warden's duties during blackouts.

4. The School as a Warden's Post:

- (a) A survey of the school building with a view to deciding which part would give the most protection from blast, collapse of structure, falling debris, and gas; exits.
- (b) Plans for action during a raid; signal system; disposition of classes; establishment of posts for policing, fire fighting, first aid, messenger service; communication with the local A.R.P. headquarters and the various posts within the school; evacuation plans.
- (c) How panic may be avoided—careful planning, practice in performing duties, provisions for entertainment during a raid.

5. School Warden Service:

It is suggested that teachers and senior pupils organize a definite A.R.P. unit. Pupils should be assigned to one of the following services. Four or five periods will be required for the training in each service. The place of each group in the regular C.D.C. organization should be studied, but as far as possible this information should be related to the work required from the group in the school A.R.P. unit.

- (a) Police—characteristics of a good police officer; patrol duties; traffic control; rules and their enforcement; practice in observing and reporting.
- (b) Fire—general behaviour at fires; use of hose, stirrup pump, fire extinguishers, tools and simple apparatus; water supply; rescue work; plans for emergencies.
- (c) Medical—first-aid post: staff; organization; special duties.
- (d) Transportation—possible requirements during air raids; moving people, supplies or equipment; evacuation of school children; organization of messenger service for the school and of a bicycle brigade to assist the local C.D.C.

6. Group Exercises:

Mobilization practice; report centre and warden post in action; use of instruction cards and incident cards; reports from the services.

REFERENCES

- Defence Training (Dent).
- Air Raid Wardens' Handbook No. 6.
- Police Services Handbook No. 3.
- Fire Services Handbook No. 4.
- Public Utilities and Transportation Services Handbook No. 5.
- Tactical Training in A.R.P.—S. Evelyn Thomas.

AIRCRAFT RECOGNITION (20 PERIODS)

1. Review types, recognition points, and definitions of silhouette terms used in teaching in Grade X.
2. Description and illustrations of allied and enemy aircraft.
3. Review of the following aircraft studied in Grade X:

Hurricane	Spitfire	Me. 109
Airacobra	Kittyhawk	Ju. 87B
Boston	Do. 17Z (217)	Wellington
Ju. 88	Marauder	Baltimore
Mitchell	Me. 110	Mosquito
4. The following aircraft should be recognized at sight:

Barracuda	Typhoon	Macchi 202
Mustang	Re. 2001	Hampden
He. 111	Whitley	Blenheim
Hudson (Bentura)	Ju. 86P	Hs. 129
Dakota	Commando	He. 177
Beaufort	Beaufighter	Me. 210
Lightning	Whirlwind	

REFERENCES

- Defence Training (Dent).
Saville-Sneath, "Aircraft Recognition."
Air Pamphlets, C.A.P. 12A.
Current magazine articles.

NAVAL AND ARMY SPECIALIZATION (14 PERIODS)

1. Survey of the characteristics and functions of different classes of ships in the Canadian Navy—destroyer, corvette, minesweeper, fairmile, and auxiliary cruiser.
2. Survey of the characteristics and functions of the battleship, cruiser, and aircraft carrier.
3. Survey of the functions of the fighting arms—armoured troops, artillery, engineers, infantry, signals, ordnance, aircraft-army co-operation.
4. Weapons and vehicles—a brief study of the characteristics and functions of typical weapons and vehicles with special reference to modern equipment.

If time is available, a discussion of the following is suggested:

1. The effect of mechanization on modern military tactics.
2. Co-operation among services; supply and maintenance of equipment.

REFERENCES

- Defence Training (Dent).
Cadet Training Pamphlet to be supplied (Army).

Grade XIII

Navigation.....	34 periods
Meteorology.....	17 periods
Principles of Flight.....	17 periods
	<u>34</u> periods
Advanced Map Reading and Applied Mathematics.....	34 periods

NAVIGATION (34 PERIODS)

<i>Period</i>	<i>Subject</i>
1	Introduction: meaning and origin of navigation; outline of three methods of navigation; map reading; D.R.; position lines.
2	The earth: form; great circle; small circle; equator; meridians; parallels; rhumb line.
3-5	Direction on the earth: true north; magnetic north; compass north; variation; deviation; compass error.
6-8	Air Force terms: course; track; drift; bearing; wind direction. Navy terms: set and drift of current; tide. Analogies between wind effect and current or tide effect. Emphasize different definitions of term "drift."
9	Position on the earth: latitude; longitude; differential latitude; differential longitude; examples.
10	Bearing and distance; methods of reporting position; examples.
11	Ground position; air position; D.R. position; measurement of distances; statute mile; nautical mile.
12	Speed: its measurement; air speed; ground speed; wind speed; wind velocity; height; altimeters.
13	Velocity; vector; labelling of vectors.
14	Time and speed scales; examples; practice in these using maps of different scales; used in Air Force only.
15-16	Vector triangle; vector parallelograms; vectoral addition; solution of vector triangles—Case I.
17-18	Solution of vector triangles—Case II, Examples.
19-20	Solution of vector triangles—Case III, Examples.
21	Drift; navigational problems based on triangle of velocities. Re-emphasize different definitions of "drift" in Navy and Air Force.
22	Maps and charts; representing the earth on paper; topographical and navigational projections.
23-24	Scale; relief; conventional signs on topographical maps and marine charts.

- 25 Use of topographical map; map reading 1.
Use of topographical map; map reading 2.
- 26 Map reading practice—problems.
- 27 Navigational charts—Mercator.
- 28 Scale; distance; bearings.
- 29–34 Review and problems.

REFERENCES

C.A.P. 12A, Section on Navigation.
Pilotage and Navigation, Book I (Canadian Legion Series).

METEOROLOGY (17 PERIODS)

1. Introduction: definition; importance of meteorology to aviation; co-operation of meteorological staffs.
2. The weather map; introductory study.
3. The atmosphere: composition of atmosphere; nature and measurement of air pressure; mercury barometer; aneroid barometer; pressure and altimeters.
4. The atmosphere (continued): horizontal change of pressure; effects of reduced air pressure on aircraft; examples of pressure change effects along a flight track.
5. The atmosphere (continued): definitions—troposphere, stratosphere; temperature—variation of air density with heights and temperature; temperature allowances.
6. Wind: wind description; wind and navigation; measuring surface wind velocity—pilot balloons, cloud movements; wind changes with height.
7. Wind (continued): Beaufort scale of wind force; wind change—veering, backing; gustiness.
8. Moisture in the atmosphere; water in the atmosphere—three states; humidity—relative humidity, measurement, variation of humidity.
9. Moisture in the atmosphere: condensation; fog in relation to navigation; radiation fog; fog due to air movement; frequency of fog occurrence.
10. Clouds: importance of knowledge of cloud types and associated weather; processes of cloud formation; cloud types—introduction.
11. Cloud types: high clouds—cirrus, cirrocumulus, cirrostratus; medium clouds—alto cumulus, altostratus; low clouds—stratus, stratocumulus, nimbostratus; clouds of great vertical development—cumulus, cumulonimbus.
12. Clouds: hints for remembering cloud types; methods of measuring cloud-base height; hints on observing clouds.

13. Precipitation and visibility: rain; snow; sleet; hail; visibility—definition, measuring visibility by day and by night; visibility in clouds and precipitation; visibility from the air—up (down) moon, up (down) sun.
14. Ice formation: effects of ice accretion—increased air drag and stalling speed, reduced engine power; cause of ice formation on aircraft; types of ice formation—hoar frost, glazed frost, rime.
15. Thunderstorms: causes; characteristics of a fully developed thunderstorm cloud; determining distance and track; flying in thunderstorms—vertical currents, hail, lightning, icing.
16. The weather map: symbols used; isobars, isobars and wind; general discussion of typical weather chart—warm front, cold front, occlusion; weather reports; weather forecasts.
17. Review.

REFERENCE

C.A.P. 12A, Section on Meteorology.

PRINCIPLES OF FLIGHT (17 PERIODS)

1. Introduction: the air; brief history of flight; flying today.
2. Air speed and ground speed: distinction between A/S and G/S; wind effects—taking off, landing, navigating, gliding, climbing, wind gradients and turbulence.
3. The wings—their use; wing section; angle of attack; airflow over wings; distribution of pressure—centre of pressure.
4. Lift and drag: definitions; effects of increasing angle of attack; stalling of the wing.
5. Drag (continued): analysis of drag—skin friction, form drag, streamlining; effects of speed and air density; cooling drag; wind drag—profile, induced; aspect ratio.
6. Straight and level flight: the four forces—lift, drag, weight, thrust; conditions of equilibrium; level flight—cruising speed, low speed; importance of tail trimming devices.
7. Stalling: causes; slots—effect at the stall, disadvantages as a means of reducing stalling speed.
8. Gliding: gliding angle, gliding path; minimum gliding angle; speed of glide; stalling speed of glide.
9. Flaps: definition; split flaps; wheel brakes; tricycle undercarriages—advantages, disadvantages.
10. Stability: definition; types of stability; the three axes—longitudinal, normal, lateral; movements of an aircraft in the three planes—rolling, banking, yawing, pitching; a loop; a roll.

11. Stability (continued): definitions of lateral, directional, spiral; dihedral angle; inter-relation of lateral and directional stability; effects of slots and flaps on stability.
12. Control of stability: elevators, rudder, ailerons; aileron drag; control at the stall; balanced controls; mass balance; trimming devices.
13. Manoeuvre: principles—*inertia, momentum, action and reaction; acceleration, force, acceleration "G"; acceleration in path of flight.*
14. Manoeuvre (continued): principles—centrifugal force, centripetal force; acceleration due to turning; loading in a turn; aerobatics; spinning.
15. The propeller: principles; blade angle; pitch; efficiency; variable pitch—advantages; propellers—constant speed, two pitch; effects of torque and slipstream on aircraft.
16. Effect of altitude on flying: properties of atmosphere affecting flight—density, temperature pressure; how properties of air change with height; practical effects—on flying, on lift and drag, on airspeed indicator, on rate of climb, on maximum speed; ceiling—absolute, service.
17. Review.

REFERENCE

C.A.P. 12A, Section on Principles of Flight.

ADVANCED MAP READING AND APPLIED MATHEMATICS (34 PERIODS)

1. Map Reading:
 - (a) Review map and chart reading of Grade XI; scale conversion.
 - (b) Enlarging a map from a scale such as "1 inch to 1 mile" to a scale $\frac{1}{25000}$.
 - (c) Systems of reference; co-ordinates; map reference; Romers.
 - (d) True, grid and magnetic north; conversion from one to the other; the service protractor; the prismatic and lensatic compasses; determination of compass errors; marching on a compass bearing by night.
 - (e) Slopes and gradients; approximate and accurate methods of calculating slopes and gradients; vertical interval and horizontal equivalent.
 - (f) Setting a map and locating a position on it by resection.
2. Artillery Equipment:
 - (a) Guns, howitzers and mortars—types in use and their characteristics.
 - (b) Artillery instruments—the sight and field clinometers, the director with vernier attachment for magnetic variations, the dial sight.
 - (c) Ammunition—cartridges, shells, fuses and charges.
3. Ballistics:
 - (a) Definitions—the rifled gun, calibre twists, the trajectory, jump, droop, angle of departure, angle of sight, range, muzzle velocity.
 - (b) Factors affecting muzzle velocity, the trajectory and the line.
 - (c) Zone of dispersion—calculation of the probable number of hits obtained on a target.

4. Gunnery:
- (a) Laying—direct and indirect.
 - (b) The zero line; indication of targets; calculation of crest clearance.
 - (c) Artillery board—plotting the position of the pivot gun and targets and locating the arc and arm accurately on the board to measure switches and range.
 - (d) Transference of the line from the director to the guns; the apex angle; battery angle; parallelism.
 - (e) Calculation of position correction, concentration and distribution.
 - (f) Predicted shooting—
Calculation of line, angle of sight and range from map references and contours. These calculations are to be made by the use of logarithms, logarithmic sines, cosines and tangents.
The meteor—calculation of corrections for variation from normal involving such factors as charge, barometric pressure, air temperature, charge temperature, weight of shell, velocity and direction of the wind, muzzle velocity, fuse, angle of sight.
 - (g) Army-Air co-operation: aerial reconnaissance, conduct of shoots.

REFERENCE

Precis to be issued.

OUTLINE OF COURSE FOR GIRLS

Grade X

Options.....	34 periods
Campcraft.....	18 periods
Knots, Bends and Hitches.....	8 periods (see boys' course, Grade X)
Aircraft Recognition.....	10 periods " " " "
Fundamentals of Defence	
Training.....	8 periods " " " "
Small Arms.....	8 periods " " " "

CAMP CRAFT

1. Introduction:

Importance of knowledge of campcraft—as a means of self-preservation in wartime, of recreation, of conservation of natural resources.

Practice of campcraft—in summer holidays, on picnics, hikes, skiing, cycling, riding, motor trips, in schoolyard and city gardens.

✓ 2. Finding and Keeping Direction:

By landmarks, natural guides, compass, map reading.

3. Fires:

Types—cooking, heat, light, ceremonial, signal, night fire.

Situation—shelter, draft, foundation, safety.

Fuels—tinders and kindling, soft woods, hard woods, selection of woods, finding wood in the rain, preparation of wood, care of matches.

Precautions—in building the fire, while the fire is burning, in putting the fire out, in prevention of forest fires.

4. Tools:

Types—axe, hatchet, knives.

Care—when in use, when not in use.

Skills and precautions—logging, splitting, chopping, shaving.

5. Knots

Types—reef knot, single sheet bend, bowline, clove hitch, rolling hitch.

Uses—fastening boats, joining ropes, tying blanket rolls, bandages, etc.

6. Shelters:

Types—cabins, tents, natural shelters and others.

Situation—points to consider in location of each type of shelter.

Construction—materials, methods.

Care of camp and camp site.

7. Food:

Supplies—natural foods, staples, dehydrated foods.

Storage—larders, caches, packing (trips).

Water supply—sources, analyses, sterilization.

Cooking—methods, utensils, gadgets.

Planning meals—for picnics, hikes, trips, camp.

Care of supplies, utensils and dishes.

8. Tripping:
 Types—picnics, hikes, cycling, skiing, riding, canoeing, motoring.
 Packs—square blanket packs, blanket rolls, shoulder sticks, rucksacks, packs with tumplines, duffel bags, sleeping bags.
 Duffel—personal supplies, clothing, cooking utensils, food, first-aid equipment, ditty bags, food bags, tools; minimum requirements; weight; packing and distribution.
 Beds—air mattresses, bough beds, Indian willow bed, sleeping bags, bedding.
- ✓9. Sanitation:
 Washing, toilets, disposal of waste, disinfectants.
10. Conservation of Natural Resources:
 Respect for laws re fishing, hunting, fire prevention, forest conservation.

Grade XI

First Aid.....	22 periods
Nutrition.....	12 periods
✓Civilian Protection.....	12 periods (see boys' course, Grade XI)
Options.....	22 periods

Physical Education

Signals.....	(see boys' course, Grade XI)
Map and Chart Reading.....	" " " "
Fieldcraft and Woodcraft.....	" " " "

FIRST AID

1. The Meaning and Principles of First Aid.
2. The Qualifications and Responsibilities of the First-Aider.
3. First Aid Equipment:
 The kit—contents, use; substitutes.
4. Shock:
 Symptoms; treatment; the result of negligence.
5. Bandages:
 Types—four-tailed, roller, triangular.
 The use of the triangular bandage—:
 As slings—small arm, large arm, St. John; to keep a dressing in place—scalp, face, shoulder, hip, hand, foot, back, chest, elbow, knee.
6. Wounds:
 Types of wounds—incised, lacerated, contused, punctured; treatment.
7. Haemorrhage:
 Types and recognition—arterial bleeding, capillary bleeding, venous bleeding.
 The location of pressure points.
 Treatments—by digital pressure; by the tourniquet.
 Special cases of haemorrhage.

8. Fractures:
Varieties, causes, symptoms.
Treatment—general; special cases—skull, spine and pelvis, thigh bone, upper arm, etc.
9. Injuries to Joints and Muscles:
Types of injuries—dislocations, sprains, strains and ruptures; causes; symptoms; treatment.
10. Insensibility:
When breathing is absent (asphyxia):
Causes—obstruction of air passages; inhalation of gases; pressure on chest; nervous affections.
Symptoms.
Treatment—artificial respiration—Schafer, Silvester; additional treatment for special cases.
When breathing is present:
With convulsions—
Types—epilepsy, hysteria, infantile convulsions, some poisons.
Symptoms; treatment.
With no convulsions—
Types—injuries to the head, shock, fainting, sunstroke, heat stroke, diabetes.
Symptoms; treatment.
11. Poisons:
Entry—by mouth; by inhalation; by injections under the skin; by bites, stings or narcotics.
Types—corrosives, irritants, narcotics.
Symptoms; treatment; general emetics; antidotes.
Special cases—lysol, phosphorus, alcohol, strychnine, phenol, opium.

NUTRITION

1. The Meaning of Nutrition.
2. The Importance of Nutrition:
Physical fitness; mental fitness.
3. The Relation of Food to Nutrition.
4. The Essentials of an Adequate Diet to Provide Nutrition:
Construction and repair of body tissue; energy to the body; regulation of body processes; protection against disease.
5. The Sources of Food Nutrients That Supply the Essentials of an Adequate Diet:
Proteins, carbohydrates, fats, water, mineral matter, vitamins, bulk.
6. The Factors Affecting the Selection of Food Nutrients for an Adequate Diet:
Occupation, age, exercise, sex, season.
7. Economic Aspects of Foods in an Adequate Diet:
Energy foods, milk and cheese, fruits and vegetables, meats, fish, poultry and eggs, good nutrition at different levels of expenditure.
8. Psychological Aspects of Foods in an Adequate Diet:
Food likes and dislikes; suitable presentation—attractive arrangement, colour, textures, well prepared; food fads; dieting.

9. Nutrition in Wartime:

Canadian foods; how to avoid waste; salvage; rationing.

Grade XII

Healthful Living..... 34 periods
Options..... 34 periods

Physical Education..... 34 periods

Home Nursing..... 12 periods

Women's Divisions of the

Armed Services..... 14 periods

Signals or Civilian Protection. 14 periods (see boys' course, Grade XII)

Ships and Aircraft Recog-

nition..... 20 periods " " "

HEALTHFUL LIVING

Objectives

1. To consider the factors contributing to living successfully.
 2. To gain an understanding of people and why they behave as they do.
 3. To develop insight, understanding and knowledge of one's own conduct and personality (including strong points and limitations).
 4. To set up worthy standards of conduct for application in daily living.
 5. To practise the use of these standards in daily living.
1. The Meaning of Successful Living:
Physical health; economic independence; satisfying forms of recreation; satisfying social relationships; a philosophy of life.
2. The Nature of Development:
Basic needs—physiological, mental, emotional; result of satisfaction of basic needs; result of lack of satisfaction of basic needs.
3. Work:
The meaning of work; the importance of work in a life plan.
Types of work—business, journalism, teaching, medicine, nursing, war services, social service, home making, arts, industry, school work, etc.
Choosing a vocation—capacities; skill and aptitude; society's need of the work; satisfaction.
Attitudes essential to success in work—interest, self-confidence, perseverance, concentration, belief in one's service to society, creative effort, doing more than has to be done, high standards.
How to apply for work.
4. Recreation:
The meaning of recreation; the importance of recreation in a life plan.
Types of recreation:
Passive—motion pictures, radio, motoring, watching athletic competitions, etc.
Active—tennis, badminton, archery, golf, gardening, reading, discussion, camping, photography, meditation, etc.

Choosing suitable recreation:

Recreation suited to age, season, economic status, health, etc.

Recreation as a relief from work.

Essentials to success in recreation—satisfactory work, skill, interest, creative effort.

5. Social Adjustment:

Growing up emotionally:

Need for love and affection, need of expressing it.

Control and direction of anger, fear, anxiety, etc.

Determining conduct by consideration of facts rather than prejudices, superstitions, and standards of other people.

Avoidance of unhealthful ways of thinking; rationalization, blaming others, excessive day dreaming, suspicion of others, hypochondria.

Getting on with people—interest in people; interest in the world about us; friendliness; willingness to learn from others; belief in others; being a good leader and a good follower.

Living happily with your family—gaining independence; courtesy in family relations; responsibilities to the family.

Associating happily with girls—playmates, "best friend," crushes, mature friendships.

Associating happily with boys—being attractive; entertaining boys; keeping a boy's friendship; love; attitudes towards smoking and drinking.

Being a good citizen:

Understanding the social structures and social processes.

Acceptance of civic responsibilities—intelligent and socially minded voting; support of public services; layman's knowledge of law; payment of taxes.

Whole-hearted participation in group activities—at home, school, in clubs, teams, social agencies, religious and political institutions, world community.

Providing opportunity for all to develop fully, through education, work, social and cultural opportunities; allowing no one to be degraded, humiliated or discriminated against.

Self-discipline—respect for law and authority—rules in games, school regulations, self-government, traffic regulations, health laws, etc.

Full use of intelligence without fear, hatred or suspicion—defences against propaganda, awareness of disparities of human circumstances, respect for differences of opinions, evaluating scientific advances on basis of contribution to general welfare.

Promotion of socially constructive action.

Conservation of national resources.

Loyalty to the democratic ideal.

6. A Philosophy of Life:

The need for a philosophy—as an explanation of the universe in which one lives; as a driving force in success or in adversity.

The essentials in a philosophy—usefulness as a guide; well-defined goal; growth and flexibility; faith in the goodness of life.

7. Conclusion:

The essentials in successful living—work; recreation, social adjustment; philosophy of life.

HOME NURSING

1. Health in the Home:

Home hygiene; health habits.

2. The Signs of Sickness:

The importance of early recognition; when to call the doctor; temperature; pulse; respiration.

3. The Care of the Patient:

Feeding; bathing; elimination; care of mouth, teeth and hair; bed making; prevention of bed sores; rest and visitors.

4. Feeding the Sick:

Food requirements; diets; importance of water; methods of serving.

5. Treatments:

Medicine.

Other treatments such as hot-water bottle; steam inhalation; stupe, poultice; mustard plaster; compresses; enema; douches.

6. Communicable Diseases:

Disease germs; methods of spread; importance of early signs; methods of prevention; isolation.

7. Infant Care:

Clothing; daily programme; recreation.

8. Maternity Nursing:

Pre-natal care; the mother's preparation; the home nurse's preparation.

WOMEN'S DIVISIONS OF THE ARMED SERVICES

1. Traditions and History of the Services.

2. Organization—Navy, Army, Air Force.

General administration, steps in rank, badges.

3. Qualifications for Service:

Age, physical fitness, education, nationality, character, specific vocational training.

4. Training in the Services:

Basic, advanced (administration, trades or ratings); opportunities for promotion.

5. Regulations of the Services:

Conditions of service; discipline; pay, other allowances; accommodation; medical and dental care; hospitalization, recreation and entertainment; pensions.

6. Adjustments to Service Life:

The significance of the adjustments necessary in changing from civilian to service life with special reference to civilian and service discipline, privacy and barrack life, civilian and service dress, home and communal hygiene, free and controlled recreation, parental and state security.

Grade XIII

Any three of the following options.....	102 periods
(a) Child Study.....	34 periods
(b) Navigation.....	34 periods (see boys' course, Grade XIII)
(c) Principles of Flight.....	17 periods " " " "
	and Meteorology..... 17 periods " " " "
(d) Advanced Map Reading and Applied Mathematics.	34 periods " " " "

CHILD STUDY

1. Understanding Children (3 periods).
2. The Nature of Development (5 periods):
Heredity and environment; learning.
3. The Child as a Growing Person (12 periods):
Growing in the family; growing in the play group; growing in school;
growing with friends and companions.
4. Helping the Child Grow (10 periods):
Developing basic patterns through routines; developing interests
and social living through play; guiding emotional expression;
achieving discipline.
5. Security, the Goal of Child Development (4 periods).

REFERENCE

Introduction to Child Study—A Teacher's Manual. Ontario Department of Education.

HEALTH EDUCATION COURSE

in

Grades IX and X

Objectives

To provide a working knowledge of the structure, functions and hygiene of the body; to develop attitudes favourable to the practice of healthful living; to establish habits and principles of healthful living which will lay the foundation for the greatest possible happiness and service in personal, family and community life.

Principles

The content of this course should be related to the life experiences of the pupils, e.g. posture, clothing, school lunches, etc.

Anatomy and physiology should be taught as a background for the presentation of the hygiene of the body. Technical terms should be used only where necessary.

This course should be presented in a room equipped with visual aids such as charts, models, a lantern or reflectoscope, and an adequate range of reference books.

Wherever possible, the material presented in this course should be correlated with other subjects in the curriculum.

Grade IX

Health and Safety..... 34 periods

HEALTH

• 1. Introduction to the Course in Health Education:

The meaning and importance of good health:

In enjoying life, in getting an education, in earning a living.

The signs of good health:

Physical—skeletal growth, muscles, organic functioning, skin, teeth, hair, eyes, ears, tongue.

Mental and emotional—ability to face facts, to concentrate, to think clearly; attitudes of cheerfulness, self-control, self-confidence; freedom from fear and self-consciousness.

Social adjustment—ability to live with others; normal relationships with family, with friends of both sexes; responsibility to groups of which one is a member.

The attainment of good health:

A knowledge of the nature of man, e.g. his physical, mental and social characteristics.

A knowledge of the factors contributing to healthful living.

The practice of healthful living.

2. Body Mechanics:

Framework of the body:

Bones—function, types, composition, parts of the skeleton, essentials for growth and development.

Joints—types, motion in joints, structure, ligaments.

Organs of movement:

Muscles—types, function, attachments, tendons, muscles and nerves.

Effects of food, exercise, fatigue, rest.

Posture:

Good posture—standing, walking, sitting, lying, dancing, playing games.

Poor posture—common defects, causes, improvement.

The feet—structure, hygiene, e.g. bathing, exercise, shoes.

First aid:

Treatment of injuries to bones, joints, and muscles.

3. The Skin, Hair, Nails:

Skin—structure, function, hygiene, e.g. nutrition, circulation, bathing, clothing, fresh air and sunshine, cosmetics, skin disorders.

Hair—structure, care, e.g. brushing, shampooing, grooming.

Nails—structure, care.

First aid—treatment of skin injuries; abrasions, blisters, burns, scalds, sunburn, poison ivy.

4. The Eyes:

Importance of good eyesight; structure of the eyes; function of the eyes; defects and correction of vision; care of the eyes—nutrition, lighting, avoidance of strain, protection from dust and glare, regular examination; eye infections.

First aid—treatment of eye injuries; foreign body, bruises.

5. The Ears:

Importance of normal hearing; structure of the ears; function of the ears; care of the ears—avoidance of injury, protection when diving and swimming, care during a cold, early recognition of defects; ear infections.

First aid—removal of foreign body.

6. The Teeth:

Importance of good teeth; structure of the teeth; function of the teeth; defects and their causes—caries, pyorrhea; care of the teeth—nutrition, cleaning, regular examination.

SAFETY

1. Accidents and Their Causes:

The human factors—ignorance, carelessness, selfishness, impatience.

2. Accidents and Their Prevention:

(i) In the home—falls, fire, electricity, gas, cleaning fluids; poison.

(ii) In the school—fire regulations, equipment and drill; the shops and laboratories; the playground; the gymnasium; the swimming pool.

(iii) On the street and highway:

Pedestrian, driver and bicycle rider; health and fitness; knowledge and observance of traffic regulations; courtesy and common sense.

The highway—safe construction; safety measures.

The motor car—safe construction; dangers of carbon monoxide gas poisoning.

(iv) In recreational activities:

Seasonal—swimming, boating, camping, hunting, activities on ice.
Special occasions—Christmas, New Year's Eve, Victoria Day, Hallowe'en.

Public buildings—the dangers of panic; safety measures.

(v) In industry:

The responsibility of the employer; construction of factory; protection of machinery; adequate facilities for rest and recreation; enforcement of safety regulations.

The responsibility of the employee—to observe and respect safety rules; to keep physically fit.

3. The Organization of Society for the Promotion of Safety:

- (i) Local—police protection; fire protection; traffic regulations; A.R.P.; supervision of beaches and playgrounds.
- (ii) Provincial—police protection; fire protection; highway regulations; protection for industrial workers.
- (iii) Federal—police protection; fire protection; safety regulations—on waterways, on railroads, on airways, on highways; the control of the sale and use of firearms; the control of narcotics.

Grade X

Physiology..... 34 periods

PHYSIOLOGY

1. Circulatory System:

The meaning and purpose of circulation.

The organs of circulation and the functions of each—heart, lungs, arteries, veins, capillaries.

The blood—composition, functions, amount, pressure.

The circulation of the blood.

The hygiene of good circulation—rest and sleep, regular exercise and good posture, avoidance of overstrain, calmness and poise, adequate nutrition, effects of alcohol and tobacco, avoidance of infection of the heart tissues through disease.

Common diseases and abnormal conditions—anaemia, arteriosclerosis, heart conditions due to infectious diseases, infected teeth, muscular strains, drugs, poisons.

First aid—haemorrhage, shock, fainting, infections.

2. Digestive System:

The meaning and purpose of digestion.

The organs of digestion and the functions and care of each—mouth, teeth, pharynx, esophagus, stomach, small intestine, large intestine.

Factors which promote or retard digestion—exercise and recreation, happiness, care in diet, fatigue, worry and irritability, unwholesome foods.

The importance of correct eating habits—avoidance of overeating or undereating; avoidance of alcohol, tea, coffee.

Common diseases and abnormal conditions—constipation, appendicitis, indigestion, ulcers, allergies.

Use of laxatives.

First aid—poisons.

3. Respiratory System:

The meaning and purpose of respiration.

The organs of respiration and the functions and care of each—air passages, lungs, respiratory muscles.

The breathing process—inspiration, expiration.

The hygiene of respiration—breathing through the nose, muscular action in breathing, respiratory exercises, abdominal, chest and natural breathing.

Common diseases and abnormal conditions—tuberculosis, cold, influenza, sinus infection, adenoids, enlarged tonsils, pneumonia, bronchitis, pleurisy, industrial diseases.

The air we breathe—composition of air, fresh and foul air.

Requirements of good ventilation—temperature, humidity, air motion.

Methods of obtaining good ventilation.

First aid—artificial respiration.

4. The Nervous System:

The function of the nervous system—communication, co-ordination.

The structure and function of the parts of the nervous system—brain, spinal cord, nerve trunks, nerve cell.

The health of the nervous system:

Effect of nutrition, exercise, sleep and rest, fatigue, emotions, alcohol, drugs.

Mental habits, self-control, use of leisure time, recreation and hobbies.

Common diseases and abnormal conditions—hysteria, chorea, infantile convulsions, epilepsy, insanity, poliomyelitis, neuritis, sciatica.

First aid—treatment of insensibility.

5. The Ductless Glands:

Position and function of the ductless glands.

The effects of abnormal secretions.

PHYSICAL EDUCATION COURSE

in

Grades IX, X, XI, XII and XIII

Objectives

1. To promote the normal development of the pupil through wholesome physical activity.
2. To attain the physiological objectives of organic vigour, joint mobility, muscular strength and co-ordination through a graded program of physical activities.
3. To develop a variety of recreational skills which will be continued in leisure time during school years and in adult life.
4. To promote habits of good citizenship in pupils through situations that arise in the activity program.
5. To follow the instructions of the medical service for the correction of physical defects.

Principles

1. A medical examination of every pupil should be made at regular intervals in order to grade pupils for the physical activity program and to safeguard their health.
2. An orthopaedic examination of all pupils should be made at the beginning of each academic year.
3. The activities of the program should be based upon the sex, needs, interests and capacities of the pupils.
4. Pupil leadership should be used as much as possible and distributed as widely as possible, as a means of developing self-discipline and self-reliance.
5. The program should be carried on out of doors whenever the weather and facilities permit.
6. Inter-school leagues are not recommended for girls. Such competition can be justified only under the following conditions:
 - that it does not monopolize the school recreational facilities and the teacher's time and interest;
 - that every pupil in the school has adequate opportunity to participate in intra-mural games.
7. The instructor in physical education should be responsible, under the direction of the Principal, for the curricular and extra-curricular program in physical education.
8. Properly supervised recreation, shared by boys and girls together, should be promoted in such activities as badminton, tennis, ballroom and folk dancing.
9. Pupils should wear suitable costumes for the activity program.

THE GRADED ACTIVITY PROGRAMME FOR BOYS

ALL YEAR ROUND

Gymnastics

Marching; exercises; general activity—tumbling, stunts, pyramids; heavy apparatus—horse, vaulting box, buck, low bar, wall bars, forms, ropes.

Games

Low organization: team—volleyball; hit-pin baseball; lead-up games for lacrosse, basketball, hockey, rugby; individual—deck tennis, table tennis; handball.

Swimming

Strokes—crawl, back crawl, back, side, breast; diving—plain header, jackknife, back, surface, racers' plunge; games; land drill; life saving—emergency measures.

Outdoor Activities

Hiking, campcraft, nature lore.

AUTUMN OR SPRING TERM

Games

Team—baseball, cricket, lacrosse, soccer, touch rugby; individual—tennis, quoits; track and field—Grade IX—100-yard dash, $\frac{1}{4}$ -mile relay, 90-yard low hurdles (7), high jump, broad jump, hop, step and jump, cross-country run (not more than 2 miles). Grade X—120-yard low hurdles, 8-lb. shot, pole vault, additional instruction in Grade IX events.

WINTER TERM

Games

Team—basketball, hockey, indoor hockey; individual—boxing, wrestling, fencing.

Outdoor Activities

Winter sports.

OUTLINE OF COURSE FOR BOYS Grades IX and X

Basic Drill (See Defence Training Course)

Gymnastics

1. Exercises.

Teachers should prepare a minimum of three gymnastic tables for each grade, and the exercises should be selected from any of the books listed under this section. The following sequence of exercises is suggested as a guide:

Leg, arm and neck movements; trunk movements (lateral, abdominal and dorsal); special movements—posture, in pairs, relaxation or balance, foot exercises; step march, leg or easy jump.

2. General Activities.

The following apparatus exercises, arranged in teaching order, are considered suitable for pupils in Grades IX and X. It may not be possible to teach all these activities to all classes, and where this is the case a suitable selection should be made from each section.

- (1) Tumbling, Stunts and Pyramids.
 - (a) Individual—forward rolls with variations; backward rolls with variations; diving with forward rolls; head stand with variations; chest rolls; tension drop; cartwheel and round off; headsprings; handsprings; upstarts with variations; short combinations of voluntary movements: (i) front dive, twist and backroll, (ii) tension drop, jump through hands, back roll passing through handstand position; stunts.
 - (b) Couple—double rolls forward and backward; elephant walk (with rider); cradle rock; back to back, lock hands and roll over; handstand with assistance; thigh mount; mount to stand on shoulders; knee shoulder handsprings; knee shoulder hand balance; mount to standing balance on feet; ankle throws (pull up from floor); stunts.
 - (c) Group—diving with front rolls in groups of three; fundamental pyramid positions in threes, fours, fives; easy combinations, the three-man fan, human bar, etc.; pyramids—large groups in various combinations.
- (2) Heavy Apparatus.
 - (a) Vaulting horse (without pommels)—easy mounts and dismounts; vaults—flank, front, wolf, screw, rear, squat, courage; pyramids; stunts.
 - (b) Buck—running straddle vault, both hands, for distance and with turns; running straddle vault with one hand; kneel on, jump off (courage vault); jump to stand on; high front vaults, left and right; pyramids; stunts.
 - (c) Low bar—fence vault; skin the cat; underswing with variations; back circle to front rest; forward circle; inverted hang, pull up to side seat; single knee circles, backward and forward; crotch circle; stunts.

Games and Athletics

1. Games of Low Organization.
2. Team Games, and Track and Field Athletics.

These games and events will vary with local conditions, but are subject to the grade placement of activities previously outlined. The teacher should recognize that the enjoyment of playing the game is the primary objective, and the teaching of skills should be made to contribute to this end. "Lead-up" and practice games should be worked out for each activity.

Swimming

The course in swimming must be adapted to local conditions. The primary objective is that every pupil may learn to swim. The number of beginners in the class will determine when and to what extent other exercises, such as diving and life saving, may be taught.

In schools where there are no swimming facilities, systematic instruction and drill on land should be given so that pupils will have a basis for practice when making use of natural facilities. All pupils should be trained to discriminate between safe and unsafe swimming conditions.

Grades XI and XII

Basic Drill (See Defence Training Course)

Gymnastics

1. Exercises.

Gymnastic training is fundamental in a programme of physical education and should lay a foundation of physical fitness on which other recreational and rhythmic activities can be built. Teachers should prepare a minimum of three gymnastic tables for each grade, and the exercises should be selected from any of the books listed under this section. These exercises should show a progression from the easy to the difficult throughout the year, so that the monotonous repetition of known movements is avoided and the pupils are encouraged to accomplish more advanced work. The following sequence of exercises is suggested as a guide:

Leg, arm and neck movements; trunk movements (lateral, abdominal and dorsal); special movements—posture, in pairs, relaxation or balance, foot exercises; step march, leg or easy jump.

2. General Activities.

The following apparatus exercises, arranged in teaching order, are considered suitable for pupils in Grades XI and XII. It may not be possible to teach all these activities to all classes, and where this is the case a suitable selection should be made from each section. The safety teaching of Grade X should be emphasized in these grades where the hazards increase with the difficulty of the movement. The pupils should be made to appreciate the dangers of working upon apparatus without safety men in position to protect them from falls. The responsibility should be placed on the performer to wait until these men are properly stationed before attempting any movement.

- (1) Tumbling, Stunts and Pyramids. Review Grades IX and X.
- (2) Heavy Apparatus.
 - (a) Vaulting horse (without pommels). Review Grades IX and X.
 - (b) Buck. Review Grades IX and X.
 - (c) Low bar. Review Grades IX and X.
 - (d) Pommel horse—mounts and dismounts; vaults—flank, front, wolf, screw, rear, squat, courage; front and rear scissors from cross-riding seat; front rest, easy leg circles; neck spring; side scissors in saddle; short combinations of voluntary movements; pyramids; stunts.
 - (e) Parallel bars—travel—cross support, walk, jump; outside seats; straddle seats; mounts—side and end; dismounts—side and end; front and rear vaults with turns; shoulder rolls and stands; cut-offs with variations; upstarts; short combinations of voluntary movements; pyramids; stunts.
 - (f) High bar—“skin the cat”; inverted hang, pull up to side sitting position on the bar; chin the bar; side hang, jump to change of grasp; back circle to front (rest) support; single knee swing up; long underswing from front (rest) support; single knee circles, forward and backward; crotch circles forward and backward; swinging in the hang position and fundamentals of the upstart; pyramids; stunts.
 - (g) Wall bars, forms and ropes. Review Grades IX and X.

Games and Athletics

1. Games of Low Organization.
2. Team Games.

The following games will vary with local conditions, but as a general rule the outdoor programme of the fall term should not be repeated in the spring. The teacher should recognize that the enjoyment of playing the game is the primary objective, and the teaching of skills should be made to contribute to this end. "Lead-up" and practice games should be worked out for each activity.

Volleyball; hockey; baseball; lacrosse; touch rugby; basketball; indoor hockey; cricket; soccer.

3. Individual Games.

In the senior grades, individual games assume greater importance, as it is these games which are continued in adult life.

Badminton; deck tennis, table tennis; handball; tennis; quoits or horseshoes; boxing; wrestling; fencing.

4. Track and Field Athletics.

Review Grades IX and X with these additional events:

High hurdles; javelin throw; hurling the discus; cross-country run (not more than 4 miles).

Swimming

The course in swimming must be adapted to local conditions. The primary objective—that every pupil may learn to swim—should have been accomplished by the end of Grade X. In Grades XI and XII emphasis should be placed on perfection of strokes, additional dives, water safety, and life-saving methods and procedures.

In schools where there are no swimming facilities, systematic instruction and drill on land should be given in life-saving methods and water safety.

1. Strokes:

Crawl; back stroke; breast stroke; back crawl; side stroke; the life-saving kick.

2. Diving:

Plain header; back; racers' plunge; jackknife; surface.

3. Games.

4. Land Drill.

5. Life Saving—emergency measures.

Outdoor Activities

Hiking; nature lore; campcraft; winter sports.

Social Dancing

Social dancing may be included in the Physical Education programme. Instruction in fundamental steps, positions and deportment will afford the pupil much pleasure and social profit throughout his lifetime. This instruction should be carried over into after-school gatherings.

REFERENCE BOOKS GYMNASICS

EXERCISES

- Pederson, Richard, and Andreasscn, Alfred: Primary Gymnastics for Boys—P. E. Publications, 54 Mitre Road, Glasgow, W.4, Scotland.
- McDowell, Thomas: Gymnastic Movements—Oxford University Press (Clarke, Irwin & Co. Ltd.).
- Board of Education: Reference Book of Gymnastic Training for Boys—His Majesty's Stationery Office, London, England (Wm. Dawson Subscription Service).

GENERAL ACTIVITIES

- McCulloch, W. B.: Gymnastics, Tumbling and Pyramids—W. B. Saunders Co., Philadelphia.
- Hawkin: Gymnastic Pyramids—Oxford University Press (Clarkc, Irwin & Co. Ltd.).
- Harby, S. F.: Tumbling for Students and Teachers—W. B. Saunders Co., Philadelphia (1932).
- Machinery and Richards: Pyramids Illustrated—A. S. Barnes & Co.
- Zwarg, L. F.: Tumbling and Apparatus—John McVey, 1229 Arch St., Philadelphia.

GAMES AND ATHLETICS

- Staley, S. C.: Games, Contests and Relays—A. S. Barnes & Co.
- Mason and Mitchell: Active Games and Contests—A. S. Barnes & Co.
- Brandreth, W. G.: Canadian Book of Games—Ryerson Press.
- Lambert, Ward: Practical Basketball—Athletic Journal Publishing Co., 6858 Glenwood Ave., Chicago.
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- Fonseca, Lew: Baseball—Great Western Athletic Goods Co.
- Farcaga: Volley Ball—A Man's Game.
- Spalding Handbooks for various games—A. G. Spalding & Bros. of Canada Ltd.
- Periodicals: The Scholastic Coach—250 East 43rd Street, New York City;
The Athletic Journal—6858 Glenwood Ave., Chicago.
- Mitchell, E. D.: Sport for Recreation—A. S. Barnes & Co.
- Tisdall, R. M. N.: The Young Athlete—Blackie & Son (Ryerson Press).

Spalding Handbooks on Athletics—A. G. Spalding & Bros. of Canada Ltd.

Holmes: Movies on Paper—Wayne University, Detroit, Mich.

NOTE.—A. S. Barnes & Co. publications are sold by Copp Clark Co., Toronto.

SWIMMING

Canadian Y.M.C.A.: Swimming, Diving and Life-saving Manual—
40 College St., Toronto.

Royal Life-saving Society: Handbook of Instruction—Ontario Secretary-Treasurer, Mrs. J. M. Pretty, 206 St. Leonard's Ave., Toronto.

OUTLINE OF COURSE FOR GIRLS

Time Allotment for Grades

Grade IX.....	two periods a week
Grade X.....	two periods a week
Grade XI.....	two periods a week
Grade XII.....	two periods a week
Grade XIII.....	two to four periods a week

One additional period in Grades XI, XII and XIII may be given as listed under the options of the Defence Training Course.

Time Allotment for Activities

Grades IX and X—	Gymnastics.....	20 periods
	Rhythmics.....	20 periods
	Games and Athletics.....	20 periods
Grades XI and XII—	Gymnastics.....	20 periods
	Rhythmics.....	20 periods
	Games and Athletics.....	20 periods
Grade XIII—	Gymnastics.....	20 periods
	Rhythmics.....	20 periods
	Games and Athletics.....	20 periods

NOTE.—If swimming is taught, the time for each of the above activities should be reduced.

GYMNASISTICS

The content of this course is not listed by grades, but is arranged in progression, with suggestions as to the grade or grades in which certain activities should be carried on.

1. Fundamental Movements:

- Movements of the trunk—dorsal, abdominal, lateral.
- Movements of the upper extremity—shoulder, arm, hand.
- Movements of the lower extremity—hip, leg, foot.
- Balance movements—standing, progressing.

Locomotor movements:

- even—walking, running, jumping, leaping, hopping;
- uneven—sliding, skipping, galloping;
- derived—two-step, polka, schottische, waltz, mazurka.

NOTE.—The above movements include exercises from systems of gymnastics and modern dance. The teacher is expected to make up her own series of exercises according to the principles of the gymnastic table. The fundamental movements should be taught first in their simplest form and gradually progress in difficulty. These movements should suit the needs and capacities of the pupils and should be sufficiently difficult to present a constant challenge to them.

Progression is secured by combining movements, combining different ways of moving (sustained, swinging, suspended, percussive), increasing difficulty of starting positions, tempo and rhythmic pattern.

2. General Activities:

(a) Jumps:

Informal jumps (IX)—

- Giant strides, bob jumps, jumping obstacles, jumping to touch an object, skipping.

High jumps (IX-X)—

Standing—sideward, forward—with double take-off; scissors
—with single take-off.

Running—oblique, forward—with single and double take-off.

Deep jumps (IX-XIII)—

Standing—forward, backward, sideward; turning—with single
or double take-off.

Running—forward, sideward, oblique—with single take-off
from form or sloping form; forward with double or single
take-off from springboard.

Jumps with assistance (XI-XIII)—

One assistant—upward jump; upward jump with leg parting
(in place, over obstacle).

Two assistants—upward jump to extension, jump with leg
parting, with knee raising, with leg raising to long sitting
(in place, travelling on floor, clearing obstacle).

(b) Introduction to vaults (IX-X):

Crouch jumps—

Jumps—on the spot, advancing, from side to side; over line,
rope or form.

Stoop standing bob jumps (hand support on apparatus)—

Jump with hip lifting, leg parting, leg flexion to crouch (one,
two, three forms; horse, box, buck).

Jump in crouched position, on and off, and over apparatus.

Rests—

Front rest, knee rest, knee rest and forward dismount
(courage vault), squat mount, upsprings, front rest with
leg circling.

(c) Vaults (XI-XIII)—

Squat vault (slow and quick between), pommel, wolf, front,
flank, stride, oblique.

(d) Pyramids (IX-XIII)—

Individual, couple, triple, etc.; positions suitable for pyramids.
Extended, circular, apparatus pyramids.

(e) Stunts (IX-XIII)—

Individual, couple and group stunts.

(f) Tumbling (IX-XIII)—

Rolls, handstand, headstand, balances.

The following points should be noted:

1. Gymnastics is the basic course of the activity program in the promotion of physical fitness. It provides that fundamental training in physical education which, in conjunction with the practice of sound hygiene, will produce physical well-being adequate for the demands of daily life. It should develop easy, co-ordinated movements and the ability to maintain good posture in walking, sitting or standing as well as in all forms of activity. It should lay a foundation of physical fitness and skill which will facilitate the learning of other skills, not only in the physical education program but in all walks of life.

2. The lesson in gymnastics includes fundamental movements and general activities. Where this is not practicable owing to the shortness of the period, it is suggested that lessons be alternated between fundamental movements and general activities.
3. The ability to walk well with uniformity of speed, length of step and co-ordinated corporate movement should be stressed. This training can well be attained through gymnastic marching tactics which involve great variety in formation, stress natural posture, and economize in muscular and nervous energy. Precision in movement and the concentration necessary for accurate responses are desirable throughout the gymnastic program, but "military drill" as such is undesirable and inappropriate for girls.
4. General activities such as jumps, vaults, etc., should be practiced in squads under pupil leaders trained in a leaders' class. The value of a leaders' class cannot be too strongly emphasized, since it develops the ability to lead and to assume responsibility. It also facilitates the teaching and practice of general activities.
5. In all general activities such as jumps, vaults and tumbling, where there is danger of falling, it is essential to have a trained assistant to stand by.
6. The same activities should be repeated and practised until there is improvement in form, control, precision and ease of movement, since this is definitely one means of progression.
7. The activities should increase in difficulty from Grades IX to XIII, and each year pupils should grow in skill and improve in posture.
8. There should be marked growth in self-discipline from year to year, and in the self-direction of activities in squads under pupil leadership. By Grade XII pupils should be able to conduct squad activities safely and efficiently with a minimum of supervision by the teacher.
9. Leadership in gymnastics should be further stressed in Grade XIII as a preparation for teacher training and leadership in community and industrial recreation.
10. Music adds to the interest and enjoyment of fundamental movements.

Minimum Requirements

1. [A minimum of 100 (40-minute) periods shall be devoted to gymnastics, Grades IX-XIII.]

PERIODS

Grade IX—	Marching, fundamental movements and general activities.....	20
Grade X—	Progression in the same activities.....	20
Grade XI—	Progression in the same activities.....	20
Grade XII—	Progression in the same activities.....	20
Grade XIII—	Progression in the same activities.....	<u>20</u>
		100

2. If swimming is included in the program, the minimum number of required gymnastic periods may be reduced.

3. Where the optional periods in physical education are given, additional time should be devoted to gymnastics. In Grade XIII the equivalent of 10 periods should be allowed for leadership training.
4. It is suggested that ten lessons be devoted to one gymnastic table, which would include marching, fundamental movements and general activities.

RHYTHMICS

1. Fundamental Movements:

Movements of the trunk—dorsal, abdominal, lateral.

Movements of the upper extremity—shoulder, arm, hand.

Movements of the lower extremity—hip, leg, foot.

Balance movements—standing, progressing.

Locomotor movements:

even—walking, running, jumping, leaping, hopping;

uneven—sliding, skipping, galloping;

derived—two-step, polka, schottische, waltz, mazurka.

NOTE.—The above movements are the same as those used in the gymnastic course and serve as a preparation for the dances.

2. Fundamental Rhythms:

Phrasing.

Primary rhythm—duple, triple, quadruple time.

Secondary rhythm—divisions of the pulse or time pattern, e.g. resultant rhythm, syncopation, etc.

Musical forms:

Song form, A B A, A A B A; rondo, A B A C A D, etc.; theme and variations; canon.

3. Dances:

Folk dances:

American—round, circle, square, longways; English—circle, square, longways; Scotch; Irish; French; German; Scandinavian; European; Indian; Mexican.

National dances:

Scotch—Highland Fling, Sword Dance; English—Sailors' Hornpipe, Morris, Sword; Irish—Hornpipe, Reel, Jig; Italian—Tarantella; Mexican—Jarabe Tapatio; Hungarian—Czardas; Bavarian—Schuhplatteltanz.

Ballroom dancing:

Dance rhythms—fox-trot, waltz, tango.

Positions—closed, regular open, conversation, reverse open, left and right reverse open.

Steps—walk (slow, quick), side-step, box waltz, waltz, hesitation, two-step, grapevine, dip, balance, rocking step, canter walk, corté.

Combinations—developed from fundamentals.

Dance compositions:

Song forms; resultant rhythm; theme and variations; rondo; syncopation; character dances; tap dances; athletic dances.

The following points should be noted:

1. Participation in rhythmics should result in the joy and satisfaction of rhythmic self-expression.

2. The spirit and significance of the dance should be stressed before its form and technique.
3. The rhythmics lesson should provide a satisfying means of self-expression and should achieve the physiological objectives of the gymnastic lesson, e.g. organic vigour and co-ordination.
4. The rhythmics lesson should include fundamental movements, rhythms, a new dance and familiar dances.
5. In the rhythmics lesson based on a folk or national dance, the fundamental movements and rhythms should serve as a preparation for the teaching of a new dance. This can be achieved by analysis of the dance into its fundamentals, and use of these in the first part of the lesson.
6. In the rhythmics lesson in which a dance is composed, the fundamental movements and rhythms should serve as a preparation for the assignment for composition.
7. Each new dance learned should be regarded as an addition to a pupil's repertoire of dances which may be danced repeatedly for the social and rhythmic satisfaction inherent in them.
8. The teaching of folk and national dancing should include relevant material such as general characteristics of the type of dance, costumes and customs of the people.
9. Ballroom dancing should be made a co-educational activity, after the fundamentals have been mastered by each group.
10. Leadership in rhythmics should be stressed wherever possible, and particularly in Grade XIII as a preparation for teacher training and leadership in community and industrial recreation.

Minimum Requirements

1. A minimum of 100 periods shall be devoted to rhythmics from Grades IX-XIII, i.e. 20 periods in each grade.
 2. The course shall include at least two types of dance and may include all four.
 3. The maximum time which may be devoted to each type of dance shall be as follows:
- | | PERIODS |
|---------------------|---------|
| Folk Dance..... | 50 |
| National Dance..... | 50 |
| Ballroom Dance..... | 50 |
| Composition..... | 50 |
4. If swimming is included in the activity program, the minimum number of required rhythmics periods shall be reduced.
 5. Where the optional periods in physical education are given, additional time should be devoted to rhythmics. In Grade XIII, the equivalent of 10 periods should be allowed for leadership training.

GAMES AND ATHLETICS

1. Games of Low Organization:

Group, relay and tag games.

Lead-up games:

Basketball type—captain ball, newcomb, nine-court basketball.

Hockey type—broom hockey.

Soccer type—corner kick, punch ball, rotation soccer.

Softball type—base crick, Danish rounders, hit pin baseball,
kick baseball, long ball, soccer baseball.

Tennis type—deck tennis, paddle tennis, table tennis, wall tennis.

Volley ball type—ring volleyball.

2. Team Games:

Basketball:

Fundamental skills—

Catching and passing, shooting.

Individual tactics—

Starting, stopping, jumping, guarding, intercepting, bounc-
ing, pivoting, feinting, juggling.

Team tactics—offensive and defensive play.

Volley ball:

Fundamental skills—

Volleying, serving, passing underhand and overhand, setting
up—underhand and overhand, spiking, recovering
net ball.

Team tactics—offensive and defensive play.

Field ball:

Fundamental skills—

Running, passing, throwing for goal.

Team tactics—offensive and defensive play.

Soccer:

Fundamental skills—

Kicking, stopping, heading, trapping, blocking.

Team tactics—offensive and defensive play.

Speedball:

Fundamental skills—

Soccer skills, punt, drop-kick, place-kick, dribble and pass,
kick up.

Team tactics—offensive and defensive play.

Softball—

Fundamental skills—

Running, batting, catching, throwing, pitching.

Team tactics—offensive and defensive play.

3. Individual Games:

Tennis:

Fundamental skills—

The serve, forehand stroke, backhand stroke, volley.

Court tactics—singles and doubles games.

Badminton:

Fundamental skills—

The serve, forehand and backhand strokes—clear, drive, drop, smash.

Court tactics—singles and doubles games.

Archery:

Fundamental skills—

Stringing the bow, standing, nocking the arrow, drawing, holding and aiming, releasing the arrow.

Tournament rounds.

Golf:

Fundamental skills—

Driving, putting, use of irons.

Rifle shooting:

Fundamental skills—

Aiming, shooting from lying, kneeling, standing position, range discipline and handling of rifle.

Competitions.

4. Field Athletics:

Individual events:

Dashes up to 75 yards.

Jumps for form—scissors, front, deep.

Game skills—

Archery.

Badminton—serve into marked area.

Basketball—running shot, free shot.

Field ball—throwing for distance.

Soccer—dribbling for speed, kicking for distance, accuracy.

Softball—throwing for distance, throwing for accuracy, base running for time, batting for distance.

Volley ball—serving into marked areas, volleying net height against wall.

Novelty races—potato and spoon, hoop race, wand race, sack race, slow bicycle, tape jumping, etc.

Team events:

Low organization games—relay and lead-up games with and without equipment.

Relays—pursuit, shuttle, file, obstacle, three-legged, dash and throw, medley, potato, novelty, e.g. thread needle, spelling, adding, balancing, etc.

Game skill relays—

Basketball—running shot, free shot, passing.

Soccer—dribbling, kicking.

Softball—catching and throwing for speed (two or more players), diamond throwing for speed (all players of team on field), fielding.

Volley ball—keep up; passing; net pick-up, pass and spike.

Low organization games.

Team games.

Individual games.

Disapproved of:

High jumping (for height), broad jumping, hop step and jump, in competition; shot-put and throwing of any kind of heavy weight; long dashes, hurdling.

5. Skating.
6. Hiking.

The following points should be noted:

1. In the games period the playing of the game should be stressed rather than practice of skills.
2. The game skills should be practised as the need for them arises in the playing of the game.
3. The games lesson should begin with a short practice of a skill for which the pupils feel a need. This skill should then be coached as the game is played. At the end of the lesson pupils should evaluate their playing ability and suggest a means of improving it. This discussion will motivate the practice of skills in the subsequent lesson.
4. When the activities of the games lesson do not stress physiological objectives, a few movements to promote these should be included in the lesson.
5. The games period should be organized to provide adequate activity for every pupil in the class, either in actual playing of games or in some leadership capacity.
6. A leaders' class is the most efficient way of preparing assistants for the games period.
7. Leadership should be stressed in class periods, and particularly in Grade XIII as a preparation for teacher training and leadership in community and industrial recreation.
8. Games provide an excellent opportunity for the teaching of good citizenship.
9. It is suggested that the individual sports which are more useful in adult life be stressed in the upper grades.
10. A Sports Day, based upon team as well as individual competition, with the majority of the pupils participating, shall replace the traditional Field Day, which emphasized individual competition and appealed only to a small percentage of highly skilled pupils.

Minimum Requirements

1. A minimum of 100 (40-minute) periods shall be devoted to games in Grades IX-XIII, i.e. 20 periods in each grade.
2. The maximum time which shall be devoted to each activity is as follows:

PERIODS	PERIODS
Basketball.....	30
Volley Ball.....	20
Softball.....	20
Field Ball.....	20
Soccer.....	20
Speedball.....	20
Field Athletics.....	20
Skating.....	20
Hiking.....	20
Badminton.....	20
Tennis.....	10
Archery.....	10
Golf.....	10
Rifle Shooting.....	10

3. At least one of the games selected shall be an individual sport, e.g. badminton, tennis, archery, golf or rifle shooting.
4. If swimming is included in the program, the minimum number of required periods may be reduced.
5. Where the optional periods in physical education are given, additional time should be devoted to games. In Grade XIII the equivalent of 10 periods should be devoted to leadership training.

SWIMMING

1. Strokes:
Elementary crawl, back stroke, breast stroke, side stroke, crawl, overarm side.
 2. Diving:
Plain dive, jackknife, swan, running dive.
 3. Life Saving:
Emergency measures:
Changing from back to front and front to back positions, treading water, sink and save, relieving cramps while floating, fireman's carry from shallow water, lift out of deep water at edge of pool, surface dive for objects of different weights.
Releases:
Surface and underwater approach, front strangle hold, back strangle hold, neck hold, body hold, double grip on one wrist, breaking two persons apart.
Rescues:
Head carry, cross chest carry, hair carry, tired swimmer carry.
 4. Water Games:
Tag, relay, group.
 5. Stunts:
Elementary—head first sculling, feet first sculling, motionless floating, marching, long plunge, spinning top, wash tub.
Intermediate—canoe, swimming on breast, feet first, pendulum, paddle wheel.
Advanced—pendulum floating, rolling log, back somersaults, propeller, imitation of torpedo, formation swimming.
- The following points should be noted:
1. Every pupil in the school should learn to swim.
 2. Where a pool is not available, the mimetics of the swimming strokes should be taught, so that the pupils may practise intelligently when the opportunity arises.
 3. Every pupil should learn life-saving measures as a routine safety precaution.
 4. Advanced diving and competitive swimming should not be attempted until provision has been made for the achievement of the above standards.

Minimum Requirements

Schools which have a swimming pool should devote a minimum of 50 periods to swimming in Grades IX-XIII.

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* These books are specially recommended.

DEFENCE TRAINING

MILITARY ORGANIZATION

Current magazine articles.

Up-to-date Encyclopaedia.

*Langford, R. J. S.: Corporal to Field Officer—The Copp Clark Co., 1941.
Burch: So I Said to the Colonel—Ryerson Press.

KNOTS AND LASHINGS

Cadet Training Pamphlet, 1942: Knots and Lashings.

*Air Cadet Pamphlet No. 8.

Boy Scout Knot Book, Gilcraft.

Pope, N. A.: Knots and Splices, Basic Training Manual—Sir Isaac Pitman & Sons, 1941.

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*Small Arms Training, Vol. 1, Pamphlet No. 2.

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AIRCRAFT RECOGNITION

*Saville-Sneath: Aircraft Recognition—Penguin Books.

Air Pamphlets 1480 A and B.

Current magazine articles.

Pitkin, H.: What's That Plane?

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Langford, R. J. S.: Corporal to Field Officer—The Copp Clark Co., 1941.

*Notes on Map Reading, Army Issue, 1929.

FIELD CRAFT AND WOODCRAFT

*Canadian Army Training Pamphlet No. 1.

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FIRST AID

*Junior Course—First Aid to the Injured—St. John Ambulance Association.

*The American Red Cross First Aid Text Book—Blakiston's Son & Co.
First Aid Through Photographs—Michaelis.

*Air Raid Wardens' Handbook No. 6.

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Canadian Red Cross Society—Health, Home Nursing and Emergencies, 1942.

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Public Utilities and Transportation Services Handbook No. 5.

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- *General Training Manual, Handbook No. 2, Civilian Defence Committee, Parliament Buildings, Toronto.
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- Cheley and Fagans: The Camper's Guide—Blue Ribbon Books, Inc., New York, 1939.
- MacDougall, F. A.: Camping Trips (mimeographed)—Mary L. Northway, 100 St. George St., Toronto. 15c.
- Hill, F. M.: Bibliography of Camp Literature—Mary L. Northway, 100 St. George St., Toronto. 15c.
- *Hammett, Catherine: Campcraft A.B.C.'s—the Author, 684 Riverside Drive, New York, 1933.
- Mason, Bernard S.: Jud Goes Camping—A. S. Barnes & Co., 1941.
- *Mason, Bernard S.: Woodcraft—A. S. Barnes & Co., 1939.
- Northway, Mary L.: Charting the Counselor's Course—Longmans, Green & Company, 1940.
- Seton, Ernest: The Book of Woodcraft—Doubleday Page, 1922.
- The Camping Magazine—American Camping Association, 343 S. Dearborn, Chicago, Ill.

SIGNALS

- *Shackel, R. G.: The Morse Code—Longmans Green, 1942.

NAVIGATION

- *Air Pamphlet, 1234.
- Precis supplied by R.C.A.F.

AIR FRAMES

- *Brimm and Boggess: Aircraft Maintenance—Sir Isaac Pitman & Sons.
- *Air Cadet Pamphlet No. 11, "Airframes."

THEORY OF FLIGHT

- *Air Pamphlet 129.
- *Air Cadet Pamphlet No. 10, "Theory of Flight."

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GENERAL REFERENCES

Teacher References

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- Best and Taylor: The Living Body—Henry Holt & Co.
- *Conrad and Meister: Teaching Procedures in Health Education—W. B. Saunders Co., 1939.
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